

ICHTHYOLOGY.—*Descriptions of a new genus and a new species of Parodontinae, characinid fishes from South America.*¹ LEONARD P. SCHULTZ, U. S. National Museum, and CECIL MILES, Escuela Superior de Agricultura Tropical, Cali, Colombia.

During the latter part of 1942 we were comparing a specimen of a characinid fish from Colombia with *Apareiodon dariensis* Meek and Hildebrand. The Colombian fish had a color pattern almost exactly like the Panamanian species, but upon making further studies we found it differed in several respects and decided to describe it as new.

When Dr. Carl H. Eigenmann described the genus *Apareiodon* (Ann. Carnegie Mus. 10: 71. 1916; genotype: *Parodon piracicabae* Eigenmann), he referred *Apareiodon dariensis* Meek and Hildebrand to it. This latter species, from the Río Cupe at Cituro, Darién, Panamá, was based on three specimens, 105, 120, and 135 mm in length. The second specimen, U.S.N.M. 78379, has been carefully studied by us, and we must conclude that it belongs to the genus *Saccodon* Kner and Steindachner.

Since we desired to understand more thoroughly why Eigenmann would refer *A. dariensis* to the genus *Apareiodon*, we studied all the fishes of this subfamily available in the United States National Museum, and, in addition, Dr. W. M. Chapman, curator of fishes, California Academy of Sciences, kindly lent most of their specimens of this group for study by the senior author, who appreciates this courtesy exceedingly. While working with the material, it soon became obvious that a new genus should be recognized and that the generic relationships needed further examination. This new genus is described below.

Subfamily PARODONTINAE

Parodontops, n. gen.

Genotype.—*Parodon ecuadoriensis* Eigenmann and Henn, in Eigenmann, Henn, and Wilson, Indiana Univ. Stud., no. 19: 12. 1914 (Vinces, Ecuador; Colimes, Río Daule, Ecuador).

This new genus is based on paratypes of

Parodon ecuadoriensis Eigenmann and Henn from Vinces, Ecuador, U.S.N.M. 76974, and on another specimen of the same species, U.S.N.M. 83535, from Ecuador, measuring 117 mm in standard length.

After careful study of the 67-mm type (Indiana Univ. Mus. 13104) of *Parodon terminalis* Eigenmann and Henn (in Eigenmann, Henn, and Wilson, Indiana Univ. Stud., no. 19: 12. 1914) from Vinces, Ecuador, we conclude that it represents the young of *P. ecuadoriensis*.

Parodontops may be recognized from the other genera in the subfamily Parodontinae by its teeth, the two simple pectoral rays, i, 8 pelvics, along with the wide inner second sub-orbital and narrow interopercle.

The following key will aid in separating the various genera related to *Parodontops*, as well as indicate some of the generic differences that we have observed in this study.

KEY TO THE GENERA OF PARODONTINAE

- 1a. Teeth in upper jaw 0+6+0 and not in a straight line; edge of thin upper lip free and crossing middle of teeth on premaxillaries; no teeth in lower jaw, the edge of which is 5-lobed; pectoral rays ii, 12 to 16; pelvics usually i, 8 (Fig. 1) *Saccodon* Kner and Steindachner
- 1b. Teeth in upper jaw normally 2+8+2 (2 teeth on each maxillary); upper lip not free but forming part of flesh between bases of teeth on premaxillaries.
 - 2a. Pectoral rays ii, 14 to 17; pelvics i, 8; no teeth on lower jaw. *Parodontops*, n. gen.
 - 2b. Pectoral fin rays i, 11 to i, 16; pelvics i, 7, rarely i, 8.
 - 3a. No teeth on lower jaw.
 - *Apareiodon* Eigenmann²
 - 3b. Teeth at sides of lower jaw normally 3+3, but one or more may be lacking in young.
 - *Parodon* Cuvier and Valenciennes³

² As near as can be determined from the descriptions, supplemented by specimens in the U. S. National Museum and from the California Academy of Sciences, we think the following species should be referred to this genus: *Parodon piracicabae* Eigenmann, 1907 (genotype); *Parodon affinis* Steindachner, 1879 (= *Parodon paraguayensis* Eigenmann, 1907); *Apareiodon davisi* Fowler, 1941; *Apareiodon hasemani* Eigenmann, 1916; and *Apareiodon itapicuruisensis* Eigenmann and Henn.

³ As near as can be determined from the de-

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Saccodon caucae, n. sp. Figs. 1, 2.RAYADO; MAZORCO⁴

Holotype.—U.S.N.M. 121285, a specimen, 109 mm in standard length, collected in the upper Río Cauca north of Cali, Colombia, by Cecil Miles during October, 1942.

Paratypes.—All the paratypes bear the same data as the holotype and are deposited in the following institutions: United States National Museum, No. 120166, 130 mm in standard length; Escuela Superior de Agricultura Tropical (E.S.A.T.), Cali, Colombia, a specimen 145 mm in standard length, numbered 17 in their collection, Instituto de Ciencias Naturales, Bogotá (I.C.N.B.), a specimen 115 mm; Museum of Comparative Zoology (M.C.Z.), a specimen 135 mm.

These specimens usually occur in slowly flowing streams, lazily at rest on the bottom, frequently lying in groups of three or four and perfectly visible. When disturbed, they dart away extremely fast, often hiding among rocks or seeking protection by brush along the banks. They are difficult to catch.

Description.—The description is based on the holotype and paratypes listed above. Certain detailed measurements and counts were made, and these data are recorded in tables 1 and 2 along with similar data on the paratype of *S. dariensis* (Meek and Hildebrand) and for other species.

The head is a little depressed, the snout

descriptions, supplemented by numerous specimens in the U. S. National Museum and from the California Academy of Sciences, we think the following species should be referred to this genus: *Parodon suborbitalis* Cuvier and Valenciennes (genotype); *Parodon apolinari* Myers, 1930; *Parodon bifasciatus* Eigenmann, 1912; *Parodon buckleyi* Boulenger, 1887; *Parodon caliensis* Boulenger, 1895; *Parodon carrikeri* Fowler, 1940; *Parodon caudalis* Fowler, 1940; *Parodon gestri* Boulenger, 1902; *Parodon hilarii* Reinhardt, 1866; *Parodon nasus* Kner, 1859; *Apareiodon pongoense* Allen, 1942, which has two small teeth on each dentary of the type, as found when examined by the senior author; and *Parodon tortuosus* Eigenmann and Norris, 1900.

The holotype of several species listed here should be examined to determine with greater certainty whether each of these species really belongs in the genus *Parodon*, except the genotype, *P. suborbitalis*. In the young of *Parodon* the teeth on the lower jaw are often undeveloped, and probably *Apareiodon* and *Parodon* should not be separated generically.

⁴ Corunta and Tusa are the common names of *Parodon suborbitalis* in the Magdalena Basin of Colombia.

rounded, caudal region a little compressed; nasal openings separated by a valvular flap and located just in front of the eye; gill membranes joined with a wide free fold across isthmus; no teeth on lower jaw, the lower lip 5-lobed; premaxillaries with six teeth, arranged in a broad V-shape, the two inner ones located farthest forward, no teeth on maxillaries; a fold of the upper lip covers pediculate bases of teeth;

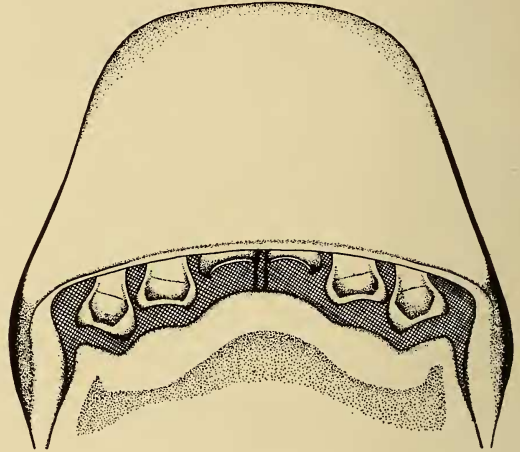


Fig. 1.—Underside of head, with enlargement of teeth and lips.

groove at sides of snout ending opposite posterior ends of dentary bones and not continuing opposite outer ring of suborbital bones; posterior margin of pupil in center of head; anus equal distance from rear base of pelvics and anal origin; insertion of pelvics equal distance from front of eye and midcaudal fin base; distance from pelvic insertion to anal origin 3.6 and snout to dorsal $2\frac{1}{4}$, depth 4.3, head 4.2, all in standard length; least depth of caudal peduncle 1.9 in head; second simply ray of dorsal not quite so long as first branched ray, posterior margin of this fin a little concave; first and second branched anal rays longest, rear margin of anal fin truncate; margin of pectoral fin a little rounded, that of pelvics truncate; caudal fin deeply forked, lobes pointed; adipose fin small, inserted over middle of base of anal fin; pelvics inserted under rear edge of dorsal fin base; five or six scales between anus and anal origin; the anterior rays of dorsal, anal, and paired fins have free membranes developed along the posterior edge of the rays that extend backward and partially cover the next ray, thus further increasing the stream-

line nature of this species and lessening resistance in rapidly flowing mountain streams; accessory pelvic scale present; the postcleithral process is broad and curves behind base of pectoral fin, more or less enclosing it dorsally and posteriorly; breast, belly, and all of body except head fully scaled.

Color: The general color is darker above, paler below, with three distinct rows of elongate black blotches on sides, the lower one be-

ginning behind head below lateral line consisting of five elongate black blotches; along lateral line are six black blotches; above the lateral line is a row of six or seven blackish blotches that are connected across the back by the same number of dark saddles, these more or less obscure anteriorly; lower surfaces of pectoral fins white, but upper surfaces with a wide darkish band distally and similar coloration on pelvics but less distinct; anal with a

TABLE 1.—COUNTS MADE ON VARIOUS SPECIES OF PARODONTINAE

Species	Number of fin rays																		
	Dorsal			Anal		Pelvics		Pectorals											
	iii, 9	ii, 9	ii, 10	ii, 6	ii, 7	i, 7	i, 8	i, 11	i, 12	i, 13	i, 14	i, 15	i, 16	ii, 12	ii, 13	ii, 14	ii, 15	ii, 16	ii, 17
<i>Apareiodon affinis</i>	—	3	6	8	—	16	1	5	8	3	—	—	—	—	—	—	—	—	—
<i>A. itapicuruensis</i>	—	—	1	1	—	2	—	—	—	2	—	—	—	—	—	—	—	—	—
<i>Parodon hilarii</i>	—	—	5	—	5	10	1	—	—	1	5	3	1	—	—	—	—	—	—
<i>P. suborbitalis</i>	—	1	12	—	13	24	—	—	—	7	9	8	—	—	—	—	—	—	—
<i>P. pongoense</i>	—	—	1	—	1	2	—	—	—	1	1	—	—	—	—	—	—	—	—
<i>P. apolinari</i>	—	—	8	—	8	16	—	—	—	—	4	7	4	—	—	—	—	—	—
<i>P. caliensis</i>	1	2	3	6	—	10	—	—	1	7	2	—	—	—	—	—	—	—	—
<i>P. nasus</i>	—	—	1	—	1	2	—	—	—	1	1	—	—	—	—	—	—	—	—
<i>P. tortuosus</i>	—	—	2	—	2	4	—	—	—	—	3	1	—	—	—	—	—	—	—
<i>Saccodon dariensis</i>	—	—	2	—	2	—	4	—	—	—	—	—	—	3	—	—	—	—	—
<i>S. cauae</i>	—	—	5	—	5	—	2	—	—	—	—	—	—	—	—	—	—	6	2
<i>Parodontops ecuadoriensis</i>	—	—	8	—	8	—	16	—	—	—	—	—	—	—	—	1	9	7	1

Species	Number of scales before dorsal fin							
	11	11½	12	12½	13	13½	14	14½
<i>Apareiodon affinis</i>	1	—	—	2	3	—	—	—
<i>A. itapicuruensis</i>	—	—	1	—	—	—	—	—
<i>Parodon hilarii</i>	—	—	—	2	—	—	—	—
<i>P. suborbitalis</i>	—	3	8	1	—	—	—	—
<i>P. pongoense</i>	—	—	—	1	—	—	—	—
<i>P. apolinari</i>	—	2	2	4	—	—	—	—
<i>P. caliensis</i>	—	—	—	—	—	1	2	2
<i>P. nasus</i>	1	—	—	—	—	—	—	—
<i>P. tortuosus</i>	—	—	—	1	—	—	—	—
<i>Saccodon dariensis</i>	2	—	—	—	—	—	—	—
<i>S. cauae</i>	—	—	1	—	2	2	1	—
<i>Parodontops ecuadoriensis</i>	—	—	1	2	—	—	—	—

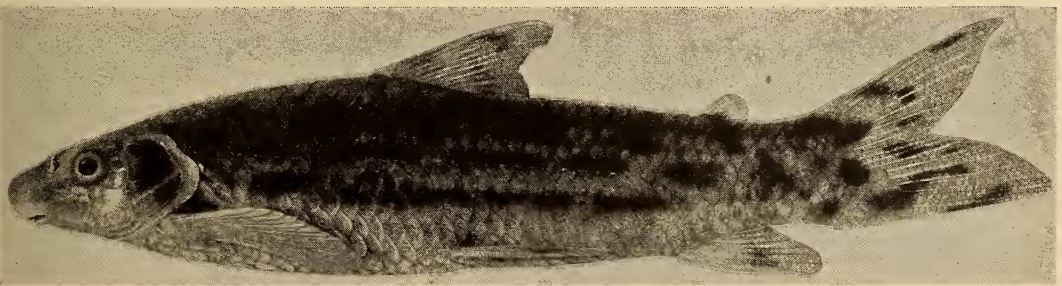


Fig. 2.—*Saccodon cauae*, n. sp.: Holotype (U.S.N.M. 121285), 109 mm in standard length. Photograph.

TABLE 2.—COUNTS AND MEASUREMENTS (IN HUNDRETHS OF THE STANDARD LENGTH) MADE ON SPECIMENS OF *SACCODON*

Characters	<i>dariensis</i>	<i>caucae</i>				
	U.S.N.M. 78379	U.S.N.M. 121285	U.S.N.M. 120166	I.C.N.B. 63	E.S.A.T. 17	M.C.Z.
Standard length in millimeters.....	93.5	109	127	115	145	138
Length of head.....	22.3	23.9	22.8	22.2	—	22.7
Greatest depth of body.....	23.7	24.1	24.0	24.4	—	21.0
Diameter of eye.....	4.82	4.40	3.78	5.22	—	3.62
Length of snout.....	8.56	9.53	8.66	7.83	—	9.13
Width of interorbital space.....	9.10	10.1	9.84	9.57	—	9.86
Postorbital length of head.....	11.3	11.7	11.4	9.57	—	10.9
Least depth of caudal peduncle.....	11.8	12.4	11.8	12.2	—	10.1
Length of caudal peduncle.....	14.8	14.6	15.4	—	—	16.8
Snout to dorsal origin.....	48.0	47.0	44.9	47.8	—	43.1
Snout to adipose origin.....	85.4	84.8	84.6	87.9	—	82.0
Snout to anal origin.....	79.4	80.7	80.0	81.0	—	76.0
Snout to pectoral insertion.....	19.4	20.0	18.3	19.1	—	18.8
Snout to pelvic insertion.....	53.5	54.1	54.0	54.6	—	50.4
Length of longest dorsal ray.....	18.8	23.7	19.6	22.6	—	19.9
Length of longest anal ray.....	14.7	17.5	14.8	17.0	—	16.0
Length of longest pectoral ray.....	19.6	20.8	18.5	19.1	—	19.6
Length of longest pelvic ray.....	17.6	17.8	16.1	17.4	—	18.5
Length of longest upper caudal ray.....	—	26.5	—	23.5	—	22.8
Length of longest lower caudal ray.....	—	—	21.7	24.4	—	21.8
Snout to anus.....	67.6	69.2	68.2	69.6	—	64.8
Anus to anal origin.....	12.0	10.7	10.6	11.3	—	11.2
Dorsal base to adipose origin.....	29.5	29.9	29.0	—	—	29.0
Dorsal fin rays.....	ii, 10	ii, 10	ii, 10	ii, 10	ii, 10	ii, 10
Anal fin rays.....	ii, 7	ii, 7	ii, 7	ii, 7	ii, 7	ii, 7
Pectoral fin rays.....	ii, 12–ii, 12	ii, 15–ii, 15	ii, 15–ii, 15	ii, 16	ii, 16	ii, 15–ii, 15
Pelvic fin rays.....	i, 8–i, 8	i, 8–i, 8	i, 8–i, 8	—	—	i, 8–i, 9
Branched caudal rays.....	17	17	—	—	—	—
Scales in lateral line.....	36	40	41	41	39	41
Scales above lateral line.....	4½	4½	4½	4½	4½	4½
Scales below lateral line.....	3	3½ or 4	3½	3½	3½	3½
Scales around caudal peduncle.....	13	14	13	—	—	13
Scales in front of dorsal fin.....	11	13½	13½	—	—	13
Scales between dorsal and adipose fins.....	12½	14½	14	—	—	14

blackish blotch; dorsal with blackish pigment basally and a blotch distally on anterior rays; caudal fin irregularly barred with black blotches and two black spots basally; peritoneum dusky; a black spot in axis of pelvics.

Named *caucae* in reference to the Río Cauca of Colombia, where it was collected.

Remarks.—This new species differs from other members of the genus *Saccodon* as indicated in the key below.

KEY TO THE SPECIES OF *SACCODON*

- 1a. Pectoral fin rays ii, 15 to ii, 16; scales in lateral line 4 or 4½+39 to 41+3 or 3½.
- 2a. Dorsal rays ii, 10; anal ii, 7; pelvics i, 8; color pattern of elongate dark blotches arranged in three streaks along sides, each row consisting of 5 to 7 elongate blackish blotches; caudal fin with elongate black blotches, and a pair of large spots basally on caudal fin; anal with a

blackish spot.... *Saccodon caucae*, n. sp.
 2b. Dorsal rays ii, 9; anal ii, 8; pelvics ? ii, 8; color plain, no spots or blotches on sides or on fins.....

- Saccodon wagneri* Kner and Steindachner⁵
- 1b. Pectoral fin rays ii, 12; scales in lateral line 4 or 4½+35 to 37+3; dorsal rays ii, 10; anal ii, 7; pelvics i, 8; branched caudal fin rays 17; 11 scales before dorsal fin; 12½ between bases of dorsal and adipose fins; color of 3 rows of oblong dark blotches along sides; black blotches in caudal fin, and a blackish blotch on dorsal and anal

⁵ *Saccodon wagneri* Kner and Steindachner, Abh. Bay. Akad. Wiss. 10: 31, pl. 4, figs. 2, 2a, 1864 (Ecuador).—Günther, Cat. Fishes Brit. Mus. 5: 301. 1864 (Ecuador).—Eigenmann, Mem. Carnegie Mus. 9: 112, pl. 19, figs. 7, 7a. 1922 (western slope of Ecuador).

Saccodon craniocepalum Thomassin, Bull. Soc. Philom. Paris 6: 248. 1882 (Río Guayaquil). This species is referred to *wagneri* with some doubt as the description by Thomassin is lacking in detail and appears somewhat contradictory.

fins. *Saccodon dariensis* (Meek and Hildebrand)⁶

⁶ *Parodon dariensis* Meek and Hildebrand, Field Mus. Nat. Hist. Publ. Zool. 10: 84. 1913 (Río Cupe, Cituro, Panamá [Tuyra Basin]).

Apareiodon dariensis Meek and Hildebrand, Field Mus. Nat. Hist. Publ. Zool. 10: 271, pl. 17. 1916.—Eigenmann, Ann. Carnegie Mus. 10: 76. 1916 (western slopes of southern Panamá).—Eigenmann, Mem. Carnegie Mus. 9 (1): 111. 1922 (Tuyra Basin).—Breder, Bull. Amer. Mus. Nat. Hist. 57: 114, fig. 5a. 1927 (Río Tuguesa, Panamá).—Hildebrand, Publ. Field Mus. Nat. Hist., zool. ser., 22 (4): 248. 1938 (Río Cupe; Río Chucunnaque; Río Chiatí).

Apareiodon compressus Breder, Amer. Mus. Nov., no. 180: 4, figs. 3, 4. 1925 (Río Tuguesa,

Darién, Panamá).—Breder, Bull. Amer. Mus. Nat. Hist. 57: 115, figs. 5b, 6. 1927 (Río Tuguesa).—Hildebrand, Publ. Field Mus. Nat. Hist., zool. ser., 22 (4): 248. 1938 (Chucunnaque Basin).

The senior author has examined the type of *A. compressus*, A.M.N.H. 8408. The left pectoral fin has ii, 12 rays, the right one being broken off near its base; the dorsal is broken, but study shows ii, 10 rays; both pelvics are in good condition, with i, 8 rays each; anal ii, 7. The mouth also is injured. The free upper lip character is clear, but the positions of the teeth are not in a straight line as in *Parodon*. The lower lip is rounded, and the 5-lobed edge found in adults is not developed. I conclude that *A. compressus* is a synonym of *Saccodon dariensis* (Meek and Hildebrand).

ZOOLOGY.—*A new species of Cyclocoelum, a trematode from the catbird.*¹ C. COURSON ZELIFF, Pennsylvania State College. (Communicated by A. WETMORE.)

Four specimens of flukes belonging to the genus *Cyclocoelum* Brandes were collected from a dead catbird found in Adams County, Pa., during 1939 by Assistant Professor Merrill Wood, an ornithologist of the Zoology Department of Pennsylvania State College. They were presented to the author for identification and study. Three of them were in good condition and were stained with Delafield's hemotoxylin, a slight pressure being applied to the specimens between slides. No previous record has been found of a member of the genus *Cyclocoelum* in catbirds, and a study of the worms indicates sufficient anatomical differences to justify regarding them as representing a new species.

Cyclocoelum dumetellae, n. sp.

Specific diagnosis.—Body oblong, sides nearly parallel in middle, body slightly curved to right, narrowed slightly anteriorly and slightly rounded posteriorly, 8.5 mm long by 1.5 mm wide. Cuticle rough and scaly but not spiny. Oral sucker 0.27 mm in diameter, subterminal and rather faintly outlined. Acetabulum lacking. Pharynx 0.22 to 0.27 mm wide by 0.27 to 0.30 mm long. Prepharynx present. Esophagus 0.5 mm wide, short and somewhat sinuous. Intestinal caeca continuous in the posterior portion, typical for the genus. Excretory vesicle between the posterior arc and body wall, with lateral excretory canals. Testes nearly spheri-

cal, 0.52 mm in diameter, the posterior one occasionally slightly flattened anteroposteriorly. Anterior portion of vas deferens observed; vasa efferentia not seen. Cirrus sac 0.07 mm wide by 0.26 mm long, on right side reaching anterior intestinal arc but rarely farther posteriorly. Genital pore at the level of posterior portion of the pharynx. Ovary 0.26 to 0.30 mm in diameter, between the testes, but to right of and out of line with them. Seminal receptacle unobserved. Mehlis's gland oblong, approximately the size of ovary. Vitellaria extending from slightly posterior of anterior intestinal arc or fork to the posterior border of the posterior intestinal arc, mostly between the caeca and the margins with slight overlapping of the former in some areas; dorsal to caeca. Transverse vitelline ducts between ovary and posterior testis. Ootype and oviduct not observed. Laurer's canal apparently absent. Ova 60 μ by 120 μ .

Host.—*Dumetella carolinensis* (Linnaeus).

Location.—Air sac.

Locality.—Adams County, Pa.

Type specimen.—U.S.N.M. Helm. Coll. no. 36837; paratype, no. 36838.

Remarks.—Khan (1935) gives four groupings of species of the genus based on the relation of the ovary and testes and the intercaecal location of the uterus. One of the three specimens has the posterior testis somewhat oblong. Only one has slight overlapping of the caeca by the uterus. Other slight distortions or deviations might be mentioned that would exclude a speci-

¹ Received April 29, 1943.